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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of)	
)	
Amendment of Parts 1, 21 and 74 to)	MM Docket No. 97-217
Enable Multipoint Distribution Service)	
and Instructional Television Fixed)	File No. RM-9060
Service Licensees To Engage in Fixed)	
Two-Way Transmissions)	

COMMENTS OF PUBLIC TELEVISION 19, INC.

Public Television 19, Inc., licensee of Public Television Station, KCPT and ITFS Station WHR-531, Kansas City, Missouri, by its attorneys, hereby submits comments in support of the proposed amendments in the above-captioned proceeding.

Background. Public Television 19, Inc. is a non-profit public corporation, licensed to operate Kansas City Public Television (KCPT), the PBS member station for the greater Kansas City area. Since 1961, KCPT has provided an ever-increasing menu of educational services to the schools and communities it serves. KCPT operates as both a Kansas and Missouri station, reaching the nearly two million residents of the bi-state Kansas City area.

KCPT has operated four channels of low power Instructional Television Fixed Service licensed as WHR-531 since 1984. Throughout the years of operation, KCPT has operated these channels to support the educational and training needs of the Kansas City Area Hospital Association, the University of Missouri at Kansas City on behalf of their partnership with Kansas City EDNET, and the Metropolitan Community Colleges of Kansas City.

Besides broadcast education and outreach projects, KCPT provides a broad array of technological services to schools and the community. These include satellite learning services

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from the Satellite Educational Resources Consortium (SERC) and the National Educational Telecommunications Association (NETA), computer on-line telecommunications services through its TEACHER LINK Service and teacher training and in-service courses distributed by ITFS, satellite, cable TV, and videocassette. KCPT has recently constructed an "interactive video classroom" using digital compression to further extend its educational services to remote areas of Kansas and Missouri. This facility also serves as another origination site for programs distributed into the ITFS delivery systems. KCPT serves higher education institutions by training pre-school through graduate students, as well as training active teachers with workshops, broadcasts of college credit telecourses and ITFS distribution of interactive college credit courses.

Introduction and Summary. Distance learning is providing a vast array of new opportunities to educators and students. In our ever expanding global community the creation of communication links among people in different neighborhoods, cities, states and even countries is not only a reality but a necessity. In many rural high schools where class size dictates the curriculum, advanced and specialized programs can now be offered. The provision of educational courses to larger audiences, geographically dispersed groups, and those presently under-served by the educational community, now occurs through the use of instructional technologies at an increasing frequency.

Public television stations have long been partners with educational institutions in the course of using telecommunications technologies to improve people's lives. Through Kansas City Public Television's (KCPT's) work with K-12, post-secondary, two-year, four-year and graduate college institutions, we continue to move aggressively into the electronic delivery of

courses. All of these undertakings rely on some form of technological "tool" to electronically connect the teacher with the student. These tools of the trade are the infrastructure of today's distance learning systems.

KCPT's use of ITFS channels is focused on the distribution of educational courseware on a regional broadcast system. In an ever changing technological world, we must alter our existing perceptions of what a specific technology can and can not do. The introduction of digital technologies requires us to view traditional services, like ITFS, with a new perspective. Given the well documented research indicating the great value of interactivity to improved and successful learning, KCPT understands the opportunity to use the new interactive applications made possible through the digital response stations associated with ITFS transmitters.

Two-way Communications. The Commission has proposed to amend its rules to permit the use of MMDS and ITFS spectrum to provide response channels for the purpose of transmitting voice, video and/or data. The flexibility promised by this proposal can only further enhance the ability of ITFS stations to fulfill their mission. In instances where live, real-time programs are distributed by ITFS, two-way audio is a vital element in successfully promoting interactive learning among participants. KCPT has actively promoted using voice interaction as a regular feature of its live, real-time ITFS course offerings. Because of the current FCC ITFS regulations limiting the use of response transmitters, KCPT has relied entirely on telephone calls placed to the originating studio to facilitate this interaction. Increasingly, however, the types of instruction being delivered and proposed for delivery through ITFS broadcasts are requiring more complex forms of interaction.

Several business education courses currently being offered by KCPT's ITFS system

require fax transmissions of spreadsheets from students to the instructor during class time. These are then displayed on an overhead projector and their images re-transmitted to the students at the receive sites. Instructors have created a more efficient method of performing the same activity in traditional computer classrooms by having students submit their spreadsheets electronically so the computer image can be displayed to all the students.

With the implementation of the proposed changes permitting two-way audio, video, and data communications, KCPT's educational course producers could provide a more efficient interactive service. For example, a program distributed to the 30 member metropolitan hospitals of the Greater Kansas City Health Council could permit a nursing instructor to demonstrate the procedure of sterilizing, disinfecting, wrapping, and packaging medical equipment to several remote sites. The use of an "enhanced" response channel could then permit the instructor to view each student practicing the procedure.

Through the use of a two-way data system, KCPT envisions that the administration of exams for the courses taught on the ITFS channels could be significantly improved. Many college course offerings are already using online interactive testing made possible through the Internet. The ability to use the Internet to deliver exams interactively by ITFS would:

1. eliminate the problems that arise in using a courier system;
2. provide students with the convenience of not having to find a way to get to a testing site; and
3. expand the possibilities to provide real-time computer-chat conferencing at sites not directly connected to the Internet.

While the FCC rules already permit ITFS stations to deliver non-video services, those at

"receive" sites still cannot electronically "request" data to be sent by a response transmitter. This primary function of a user connecting to online services (i.e. the Internet) is currently possible through the use of a telephone line servicing a single ITFS receive site. In current configurations this secondary technology (traditional telephone data transmission) would then need to be configured to work with the digital delivery of data through the ITFS system. This level of complexity in combining telephone and ITFS data transmission adds significantly to the cost and feasibility of using currently configured ITFS spectrum to deliver online or data services. All three of the educational institutions offering courses through the KCPT ITFS system could benefit from the ability to use a wireless system to receive and transmit information on the Internet.

Subchannelization. The Commission has proposed to permit ITFS licensees to subdivide their response channels to provide distinct operating frequencies for each of more than one response station. This proposal will promote efficient and flexible use of the spectrum, and enable the provision of new services that were not possible before. For instance, the Kansas City Area Health Council distributes courses on the KCPT ITFS channels. Often, high quality radiological images and tissue specimens need to be displayed. In the current analog system, these image transmissions require the use of the full 6 MHZ of allocated bandwidth. In a digital transmission scenario, however, the amount of digital capacity, using the total 19.4 Mbps, allows for the delivery of multi-channel services at high quality resolution.

A math course being offered by the Metropolitan Community College District that uses a "talking head" format might only require a relatively low amount of ITFS digital capacity, possibly only 4 Mbps. On the other hand, a pathology conference among physicians requires a

high quality of image reproduction and would require use of a larger amount of digital capacity possibly as much as 12 Mbps. Should the rules be amended to permit such dynamic assignment of digital capacity KCPT could deliver both programs simultaneously, each using a different amount of the digital capacity.

Superchannelization. The flexibility to combine channels is similarly important. Thirty local hospitals are set up as receive sites for the KCPT ITFS system. Current healthcare trends dictate that many hospitals sharing physicians with specialties in areas such as cardiology or osteopathy. With the ability to combine two channels into a single channel with a wider bandwidth, we could enable physicians from smaller hospitals to video conference with one another, sending medical records and detailed video images back and forth.

For example, a physician at Liberty Hospital, a suburb of Kansas City, could conduct a video conference with cardiologists at the Saint Luke's Medical Center sending test results and other medical data about a patient experiencing heart problems. These physicians could review the images and test results and then recommend a course of treatment. Superchannelization of ITFS digital capacity would enable the medical records to be sent quickly and expedite decisions about the patient's care.

Boosters. Key to this proceeding is the Commission's proposal to permit booster stations to originate transmissions. The ability to construct boosters with origination capability in our area could enable us to provide interactive services in remote or obstructed locations or in places that can not currently receive our ITFS signal because of obstructions. Bonner Springs, Kansas, is a small suburb of Kansas City and cannot receive our ITFS signal because of geographical obstructions. If we could construct a digital booster west of the geographical obstruction, we

could enable this site to receive ITFS programming at its various locations. Other small school districts in the same region that suffer from the same technical limitations could then work together as a unit to receive and retransmit their shared courseware.

Because of recent budget cuts in education, many area schools, especially schools in outlying areas, have had to eliminate some of their course offerings. Permitting booster stations with program origination capability would enable us to provide interactive course materials to schools in obstructed geographic locations like Bonner Springs as well as smaller school districts in outlying areas around Kansas City and to provide them with services they can not currently attain without forcing students to travel a great distance.

The construction of boosters could also enable physicians in hospitals in outlying areas to reach larger hospitals in Kansas City to consult with specialists. Similarly, a nurse practitioner in a rural town, like Oskaloosa, Kansas, that has only a small health clinic to serve the population, could video conference with the University of Kansas Medical Center, a regional tertiary care facility, to consult on a treatment plan for a patient with a non life-threatening ailment.

Booster cells could also enable childcare workers in a small rural Missouri town like Lexington to participate in video conferences with the Greater Kansas City Association for the Education of Young Children. By creating a booster "cell," the childcare workers of Lexington could share resources with their counterparts in surrounding towns, while at the same time taking advantage of the "larger conversation" and training offered from Kansas City. This would allow these participants to participate in obtaining continuing education credits without having to drive into Kansas City.

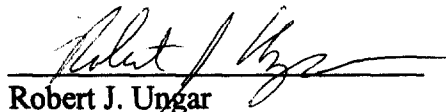
Conclusion. Public Television 19 applauds the Commission's proposals to provide ITFS

stations with the capability of true interactivity. The permission to use ITFS response stations to provide return digital transmissions to an originating site would offer greater flexibility to course and training instructors. It would also increase the efficiency of the funds spent to technically construct two-way data services. Providing booster stations with program origination capabilities would permit greater specialization of course offerings to clusters of schools and increase delivery potential to geographically isolated sites. Finally, the ability to use variable amounts of bandwidth within the existing licensed spectrum would create new flexibility in allocating limited channel space and encourage new applications to be distributed by ITFS systems.

We hope that the examples presented here will demonstrate the great public interest benefits of permitting a broad range of interactivity. Public Television 19 encourages the Commission to implement its proposals to enhance the continued educational use of the ITFS spectrum.

Respectfully submitted,

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